Initiating and Planning Systems Development Projects

Initiating and Planning System Development Projects

- Deliverables and Outcomes
  - Baseline Project Plan (BPP)
    - **Scope**
    - **Benefits**
    - **Costs**
    - **Risks**
    - **Resources**
  - Statement of Work (SOW) see fig. 5.2
    - **Describes deliverables**
    - **Outlines work needed to be performed**

Assessing Project Feasibility

- Six Categories
  - Economic
  - Technical
  - Operational
  - Schedule
  - Legal and contractual
  - Political

1- Assessing Economic Feasibility

- **We perform a Cost – Benefit Analysis**

Determine Benefits (two types)

A)Tangible Benefits

- **Can be measured easily in money**
- **Examples**
  - **Cost reduction and avoidance (better inventory management)**
  - **Error reduction (10% time correcting data entry error)**
  - **Increased flexibility (time to manually organize data)**
  - **Increased speed of activity**
  - **Improved management planning and control (analysis of data available in the system)**
  - **Opening new markets and increasing sales opportunities**

Example of Tangible Benefits Worksheet

A. Cost reduction or avoidance	4,500
B. Error Reduction	2,500
C. Increased Flexibility	7,500
D. Increased speed of activity	10,500
E. Improvement in management planning & Control	25,000
TOTAL	**50,000**

Assessing Economic Feasibility

- B) Intangible Benefits
  - **Cannot be measured easily in money**
  - **Examples**
    - **Increased employee morale/confidence**
    - **Competitive necessity**
    - **More timely information**
    - **Encouragement of organizational learning and understanding**

- Determine Costs (two types)
  - A) Tangible Costs
    - **Can easily be measured in money**
      - **Example: (next page)**

Examples of Tangible costs

- **Procurement (acquisition)**
  - Consulting costs
  - Equipment purchase
  - Equipment installation
  - Site preparation
  - Management & staff time

- **Project-related**
  - Application S/W
  - Software modifications
  - Personnel for in-house development
  - Training
  - Collecting & analyzing data
- **Operating**
  - System maintenance
  - Rental of space & Equipment
  - Management, operation, and planning personnel

Start-up

* O/S
* Communication equipment
*Start-up personnel

Assessing Economic Feasibility

- B) Intangible Costs
  - Cannot be easily measured in money
  - Examples:
    - **Loss of customer kindness/care**
    - **Loss of employee confidence**

Assessing Economic Feasibility

- The previous costs can be divided into two types:
- 1) One-Time Costs
  - Associated with project startup, initiation and development
  - Examples:
    - **System Development**
    - **New hardware and software purchases**
    - **User training**
    - **Site preparation**
    - **Data or system conversion**

Example of One-Time Cost Worksheet

A.	Development Costs	20,000
B.	New Hardware	15,000
C.	New (purchased) software	5,000
D.	User Training	2,500
	TOTAL	**$42,000**

Assessing Economic Feasibility

- 2) Recurring Costs
  - Associated with ongoing use of the system
  - Examples:
    - **Application software maintenance**
    - **Incremental data storage expense**
    - **New software and hardware releases**
    - **Consumable supplies (paper,…)**
    - **Incremental communications**

Assessing Economic Feasibility

- Time value of money (TVM)
  - The process of comparing present cash outlays to future expected returns
- All costs & benefits must be viewed in relation to their *present value* PV

$$PV_n = Y * 1 / (1+i)^n$$

Assessing Economic Feasibility

	Y1	Y2	Y3	
	1,500	1,500	1,500	
PV	1,363.65	1,239.60	1,126.95	
NPV	1,363.65	2,603.25	3,730.20	3730

- Overall NPV = NPV of benefit- NPV of cost
- Overall ROI = overall NPV / NPV of all costs

Commonly used Economic cost-benefit analysis techniques

- There are many techniques used to analyze the cost-benefit information:

1- Net Present Value (NPV) uses a discount rate to establish the present value of a project

2- Return of Investment (ROI) ratio of the net cash receipts of the project divided by the cash outlays .

3- Break-Even Analysis (BEA) finds the amount of time required for the cumulative cash flow from a project to equal its initial investment

Example of the economic feasibility analysis

- Consider the following data that describes the costs and benefits of a certain information system.
- Use these data to find whether or not the system is profitable, the breakeven point, the ROI.

TANGIBLE BENEFITS WORKSHEET
Customer Tracking System Project

	Year 1 through 5
A. Cost reduction or avoidance	$ 4,500
B. Error reduction	2,500
C. Increased flexibility	7,500
D. Increased speed of activity	10,500
E. Improvement in management planning or control	25,000
F. Other _____	0
TOTAL tangible benefits	**$50,000**

ONE-TIME COSTS WORKSHEET
Customer Tracking System Project

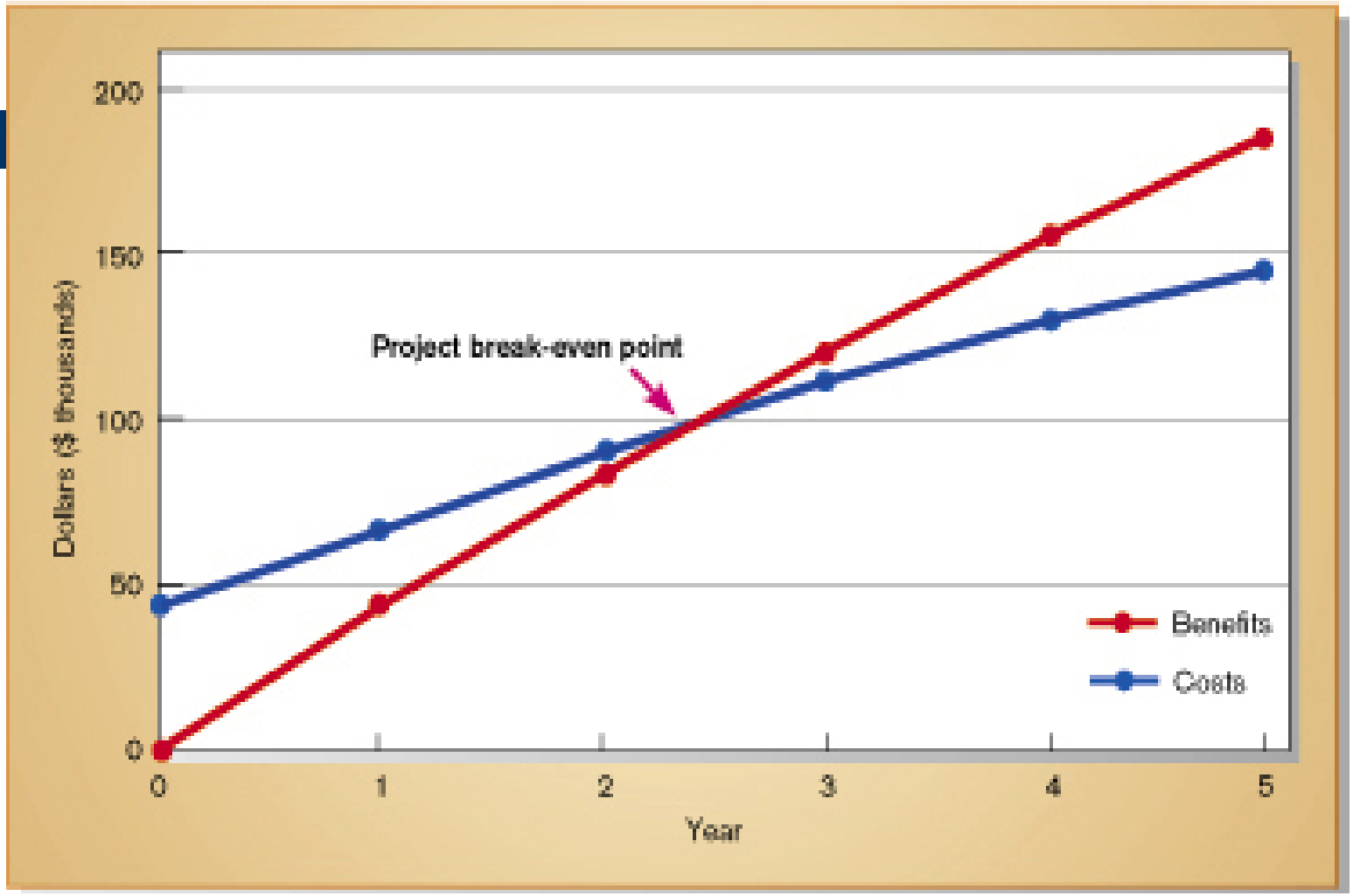
	Year 0
A. Development costs	$20,000
B. New hardware	15,000
C. New (purchased) software, if any	
1. Packaged applications software	5,000
2. Other _____	0
D. User training	2,500
E. Site preparation	0
F. Other _____	0
TOTAL one-time cost	**$42,500**

RECURRING COSTS WORKSHEET
Customer Tracking System Project

	Year 1 through 5
A. Application software maintenance	$25,000
B. Incremental data storage required: 20 MB × $50. (estimated cost/MB = $50)	1,000
C. Incremental communications (lines, messages, . . .)	2,000
D. New software or hardware leases	0
E. Supplies	500
F. Other _____	0
TOTAL recurring costs	**$28,500**

	A	B	C	D	E	F	G	H
1	**Pine Valley Furniture**							
2	**Economic Feasibility Analysis**							
3	**Customer Tracking System Project**							
4								
5					Year of Project			
6		**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**TOTALS**
7	Net economic benefit	$0	$50,000	$50,000	$50,000	$50,000	$50,000	
8	Discount rate (12%)	**1.0000**	**0.8929**	**0.7972**	**0.7118**	**0.6355**	**0.5674**	
9	PV of benefits	$0	$44,643	$39,860	$35,589	$31,776	$28,371	
10								
11	**NPV of all BENEFITS**	$0	$44,643	$84,503	$120,092	$151,867	$180,239	$180,239
12								
13	**One-time COSTS**	($42,500)						
14								
15	Recurring Costs	$0	($28,500)	($28,500)	($28,500)	($28,500)	($28,500)	
16	Discount rate (12%)	**1.0000**	**0.8929**	**0.7972**	**0.7118**	**0.6355**	**0.5674**	
17	PV of Recurring Costs	$0	($25,446)	($22,720)	($20,288)	($18,112)	($16,172)	
18								
19	**NPV of all COSTS**	($42,500)	($67,946)	($90,666)	($110,952)	($129,064)	($145,236)	($145,236)
20								
21								
22	**Overall NPV**							$35,003
23								
24								
25	**Overall ROI - (Overall NPV / NPV of all COSTS)**							0.24
26								
27								
28	**Break-even Analysis**							
29	Yearly NPV Cash Flow	($42,500)	$19,195	$17,140	$15,303	$13,664	$12,200	
30	Overall NPV Cash Flow	($42,500)	($23,304)	($6,164)	$9,139	$22,803	$35,003	
31								
32	Project break-even occurs between years 2 and 3							
33	Use first year of positive cash flow to calculate break-even fraction - ([15303 - 9139) / 15303] = .403							
34	**Actual break-even occurred at 2.4 years**							
35								
36	Note: All dollar values have been rounded to the nearest dollar							

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
Benefits	0	50,000	50,000	50,000	50,000	50,000	
PV of Benefits	0	44,643	39,860	35,589	31,776	28,371	
NPV of Benefits	0	44,643	84,503	120,092	151,867	180,239	180,239
One- time cost	42,500	0	0	0	0	0	
Recurring cost	0	28,500	28,500	28,500	28,500	28,500	
PV of recurring cost	0	25,446	22,720	20,286	18,112	16,172	
NPV of all costs	42,500	67,946	90,666	110,952	129,064	145,236	145,236
Overall NPV							35,003
ROI							0.24
Break-even analysis							
Yearly NPV cash flow	(42,500)	19,196	17,140	15,303	13,664	12,200	
Overall NPV cash flow	(42,500)	(23,304)	(6,164)	9,139	22,803	35,003	


200
150
100
50
0
Dollars ($ thousands)
Project break-even point
Benefits
Costs
0
1
2
3
4
5
Year

2- Assessing Technical Feasibility

- **It is the assessment of the development organization's ability to construct a proposed system**
- **Project risk can be assessed based upon:**
  - **Project size**
  - **Project structure**
  - **Development group's experience with the application**
  - **User group's experience with development projects and the application area**

Assessing Technical Feasibility

TABLE 6-7 Project Risk Assessment Factors

Risk Factor	*Examples*
Project Size	Number of members on the project team
	Project duration time
	Number of organizational departments involved in project
	Size of programming effort (e.g., hours, function points)
Project Structure	New system or renovation of existing system(s)
	Organizational, procedural, structural, or personnel changes resulting from system
	User perceptions and willingness to participate in effort
	Management commitment to system
	Amount of user information in system development effort
Development Group	Familiarity with target-hardware, software development environment, tools, and operating system
	Familiarity with proposed application area
	Familiarity with building similar systems of similar size
User Group	Familiarity with information systems development process
	Familiarity with proposed application area
	Familiarity with using similar systems

Adapted from Applegate, McFarlan, and McKenny, 1999

Effects of different factors on project implementation risk

		Low Structure	High Structure
High Familiarity with Technology or Application Area	Large Project	(1) Low risk (very susceptible to mismanagement)	(2) Low risk
	Small Project	(3) Very low risk (very susceptible to mismanagement)	(4) Very low risk
Low Familiarity with Technology or Application Area	Large Project	(5) Very high risk	(6) Medium risk
	Small Project	(7) High risk	(8) Medium-low risk

Assessing Other Project Feasibility Concerns

- Operational Feasibility
  - Assessment of how a proposed system solves business **problems** or takes advantage of **opportunities**
- Schedule Feasibility
  - Assessment of time frame and project completion dates with respect to organization constraints for affecting change

Assessing Other Project Feasibility Concerns

- Legal and Contractual Feasibility
  - Assessment of legal and contractual ramifications (consequences) of new system {copyright, work/employment laws, foreign trade regulations
- Political Feasibility
  - Assessment of key stakeholders in organization's view toward proposed system

Building the Baseline Project Plan

- Objectives
  - Assures that customer and development group have a complete understanding of the proposed system and requirements
  - Provides sponsoring organization with a clear idea of scope, benefits and duration of project

Building the Baseline Project Plan

- Four Sections
  - Introduction
  - System Description
  - Feasibility Assessment
  - Management Issues

BASELINE PROJECT PLAN REPORT

1.0 Introduction

A. Project Overview—Provides an executive summary that specifies the project's scope, feasibility, justification, resource requirements, and schedules. Additionally, a brief statement of the problem, the environment in which the system is to be implemented, and constraints that affect the project are provided.
B. Recommendation—Provides a summary of important findings from the planning process and recommendations for subsequent activities.

2.0 System Description

A. Alternatives—Provides a brief presentation of alternative system configurations.
B. System Description—Provides a description of the selected configuration and a narrative of input information, tasks performed, and resultant information.

3.0 Feasibility Assessment

A. Economic Analysis—Provides an economic justification for the system using cost-benefit analysis.
B. Technical Analysis—Provides a discussion of relevant technical risk factors and an overall risk rating of the project.
C. Operational Analysis—Provides an analysis of how the proposed system solves business problems or takes advantage of business opportunities in addition to an assessment of how current day-to-day activities will be changed by the system.
D. Legal and Contractual Analysis—Provides a description of any legal or contractual risks related to the project (e.g., copyright or nondisclosure issues, data capture or transferring, and so on).
E. Political Analysis—Provides a description of how key stakeholders within the organization view the proposed system.
F. Schedules, Timeline, and Resource Analysis—Provides a description of potential time frame and completion date scenarios using various resource allocation schemes.

4.0 Management Issues

A. Team Configuration and Management—Provides a description of the team member roles and reporting relationships.
B. Communication Plan—Provides a description of the communication procedures to be followed by management, team members, and the customer.
C. Project Standards and Procedures—Provides a description of how deliverables will be evaluated and accepted by the customer.
D. Other Project-Specific Topics—Provides a description of any other relevant issues related to the project uncovered during planning.

Building the Baseline Project Plan

- **Introduction**
  - Brief overview
  - Recommended course of action
  - Project scope definition
    - Units affected
    - Who inside and outside the organization would be involved
    - Interaction with other systems
    - Range of system capabilities

Pine Valley Furniture
Statement of Project Scope

Prepared by: Jim Woo
Date: September 18, 2001

General Project Information

Project Name:	Customer Tracking System
Sponsor:	Jackie Judson, VP Marketing
Project Manager:	Jim Woo

Problem/Opportunity Statement:

Sales growth has outpaced the marketing department's ability to accurately track and forecast customer buying trends. An improved method for performing this process must be found in order to reach company objectives.

Project Objectives:

To enable the marketing department to accurately track and forecast customer buying patterns in order to better serve customers with the best mix of products. This will also enable PVF to identify the proper application of production and material resources.

Project Description:

A new information system will be constructed that will collect all customer purchasing activity, support display and reporting of sales information, aggregate data, and show trends in order to assist marketing personnel in understanding dynamic market conditions. The project will follow PVF's systems development life cycle.

Business Benefits:

Improved understanding of customer buying patterns
Improved utilization of marketing and sales personnel
Improved utilization of production and materials

Project Deliverables:

Customer tracking system analysis and design
Customer tracking system programs
Customer tracking documentation
Training procedures

Estimated Project Duration:

5 months

Building the Baseline Project Plan

- **System Description**
  - Outline of possible alternative solutions
  - Narrative format of selected solution
- **Feasibility Assessment**
  - Project costs and benefits
  - Technical difficulties
  - High-level project schedules
- **Management Issues**
  - Team composition
  - Communication plan
  - Project standards and procedures
  - Other project-specific topics

Reviewing the Baseline Project Plan

- Objectives
  - Assure conformity to organizational standards
  - All parties agree to continue with project

- **Walkthrough**
  - **It is a peer group review**
    - **ensures that the work product adheres to organizational technical standards**
    - **reviews the work product in terms of future maintenance activities.**
    - **recommends required changes**